International Journal of Psychology and Counseling.
ISSN 2278-5833 Volume 13, Number 1 (2023), pp. 1-11

https://dx.doi.org/10.37622/IJPC/13.1.2023.1-11

Dance/Movement Therapy as an Adjunct in the Treatment of Patients Suffering from Schizophrenia

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Abstract

A cure for schizophrenia has not as such been materialized. (Butcher, Mineka, & Hooley, 2014*)*. Growing body of research indicates that trials of art based therapies are proving feasible and efforts should be made to embed these in the patients' clinical routine (Montag et al, 2014). Embodying art therapies, like dance therapy have been observed to be highly effective in treatment of schizophrenia (Martin et al, 2016) to reduce negative affect with anger control and improve negative symptoms as well as cognitive functioning (Lee et al, 2015). With the aim of examining the effectiveness of dance therapy in treatment of patients with schizophrenia as an adjunct to pharmacological treatment, a pre-test & post-test with control group design was chosen. N=10 (2 drop outs), n1=5-1 (Mean Age & duration of illness=25 years & 31.75 months, 50% male), n2=5-1 (Mean Age & duration of illness=22.5 years & 1.68 months, 25% Male). Patients were selected from IPD General Wards of Post Graduate Institute of Behavioral and Medical Sciences, Raipur. All the patients underwent treatment as usual. Informed consent was obtained from the caregivers of the patients selected for the study. Socio-demographic and clinical details were assessed. Random allocation was done for groups. Pre-intervention assessments were completed using MMSE (Hindi) and PANSS. The intervention group underwent 10 uniformly structured sessions of dance/movement therapy. On the last day,

after closing the therapy session, post intervention assessments were completed for both the groups. Statistical analysis showed no significant difference between and within the intervention and control groups.

Keywords: Schizophrenia, Positive And Negative Symptoms, Cognitive Functioning, Dance/Movement Therapy, D/MT

Introduction

The first generation of dance/movement therapists consistently distanced themselves from the formal nature of dance towards varying degrees of 'spontaneous movement' in order to allow for an expression of the person's inner world, rather than strive for aesthetic standards. They found various ways to teach patients to move, so that they could express themselves, and also found ways to allow the patient's inner state to influence the movement, and for the movement to influence the psyche. For Marian Chace, movement was a communication tool (Shalem-Zaffari, and Grosu, 2016). She began practicing DMT as a natural progression of the dance classes she taught, focusing on the idea of using dance to express something that could not otherwise be conveyed (Chace, 1993). This interest led to her work with nonverbal patients, and ultimately to her famed work with schizophrenic patients at Saint Elizabeth's Hospital in Washington, D.C., which was one of the first instances of dance/movement therapy being used to treat patients with major neurological or psychological disorders in a hospital setting (Chace, 1993). Chace's classes focused on the satisfaction of a basic human need for communication and the class structure revolved around the formation of a circle which patients could choose to join should they feel comfortable (Levy, 1988). The circle was intended to facilitate communication, as well as a sense of community within the group. Those who chose not to enter the circle were allowed to do so, while those that did had the opportunity to engage in group or collective movement, designed in the moment to target the collective needs of the group (Levy, 1988), (Floody, 2017). She developed the 'mirroring' movement, which allows unconscious content to arise (Chodorow, 1991). D/MT works in the sphere of embodiment and the integral relationship that the body has to the functioning of the mind (Homann, 2017; Payne et al., 2019).

Dance movement therapy engages the patients in physical and verbal exploration of their experiences generated in movement-based interaction (Pylvänäinen PM, Muotka JS, Lappalainen R. 2015). The methods involve shifting attentional states and moving in deeper relationship to self and others, for example, by fostering attuned interoceptive sensing, somatic awareness, and interactive dance (Homann, 2017). In D/MT, also labeled as dance movement psychotherapy, the two central constructs are the healing power of conscious movement and the embodied creative experience (Payne, 1992; Caldwell, 2017). In the work during the therapy session, the careful balancing of breathing, moving/expressing, and feeling/sensing is essential (Caldwell, 2017, Hyvönen, Pylvänäinen, Muotka, Lappalainen, 2020).

Growing body of research seems to indicate that trials of art based therapies are proving feasible and efforts should be made to embed these in the patients' clinical

routine (Montag et al, 2014). Art therapies, especially embodying ones like dance/movement therapy (D/MT) have been observed to be highly effective in treatment of schizophrenia (Martin et al, 2016) to reduce negative affect with anger control and improve negative symptoms as well as cognitive functioning (Lee et al, 2015). DMT is a form of creative arts therapy, which aims to integrate physical, emotional, cognitive, and social aspects into psychological treatment (Stanton-Jones, 1992; Meekums, 2002; EADMT Ethical Code, 2010; Hyvönen, Pylvänäinen, Muotka, Lappalainen, 2020).

The use of art based therapies has gained prominence in India in the past few years. Expressive art therapies have shown significant results in outcomes of mood related disorders. Music Therapy has shown to have significant effects on cognitive functioning of psychiatric patients (Nizzami & Tikka, 2014). However, only few dance therapist admit to have worked with populations like these in India (Rangparia, 2011). In fact almost no studies could be found which studied the effects of dance/movement therapy that combines both expressive art and music with movement in the treatment of schizophrenia in India. Tripura Kashyap, the pioneer of Dance/Movement Therapy in India defined it as the *"*Use of the medium of body and its movements (instead of words) to elicit self-expression from individuals that ultimately enable to interpret the individuals' psychologies and meet therapeutic goals in the domain of an Individual's Physical, Spatial, Emotional, Cognitive, and Social self" (Kashyap, 2005).

Schizophrenia is a disorder characterized by an array of diverse symptoms, including extreme oddities in perception, thinking, action, sense of self, manner of relating to others, and significant loss of contact with reality. Schizophrenia has a complex presentation with a multifactorial cause. Nevertheless, advances in neuroscience have identified roles for key circuits, particularly involving frontal, temporal, and mesostriatal brain regions, in the development of positive, negative, and cognitive symptoms. (McCutcheon RA, Reis Marques T, Howes OD. 2020). Current pharmacological treatments operate using the same mechanism, blockade of dopamine D_2 receptor, which contribute to their adverse effects (McCutcheon RA, Reis Marques T, Howes OD, 2020). Only 16% of persons suffering from schizophrenia recover to the extent that they no longer need any treatment. A cure for schizophrenia has not as such been materialized. (Butcher, Mineka, & Hooley, 2014*)*. Studying dance/movement therapy as an adjunct in the treatment of patients suffering from schizophrenia could facilitate our understanding and help examine the effectiveness of this intervention modality in the Indian context.

Method:

With the aim of understanding dance/movement therapy as an adjunct in the treatment of patients suffering from schizophrenia and examining its effectiveness in the indian context the following objectives were outlined-

- To examine the effectiveness of a dance/movement therapy intervention in reducing positive and negative symptoms of patients suffering from Schizophrenia.

- To examine the effectiveness of a dance/movement therapy intervention in improving cognitive impairment in patients suffering from Schizophrenia.

Pre test & posttest with control group design was used for studying the aims and objectives.

Hypotheses:

- H1: There will be a significant difference between the intervention and control groups on positive and negative symptoms and cognitive impairment post intervention.
- H2: There will be a significant difference within the intervention and control groups on positive and negative symptoms and cognitive impairment post intervention.

Sample:

A purposive sample (N=10-2 drop outs) was selected for the study from IPD General wards of Post Graduate Institute of Behavioral and Medical Sciences, Raipur. All the patients were undergoing treatment as usual in the hospital. Treatment as usual included electroconvulsive therapy and pharmacological management. All patients and their informants were given psychoeducation about the disorder, relapse prevention, and expressed emotion. Socio-demographic and clinical details were obtained using a semi-structured self made sheet and analyzed after taking informed consent of the caregivers. *Inclusion Criteria*: Patients with a diagnosis of ICD 10 Schizophrenia *Exclusion Criteria*: Patients with co-morbid psychiatric or organic conditions. Randomized allocation (Assessor picked up random chits with patient names) was done to create an intervention and a control group.

Table 1: Comparison of Age and education of patients allocated to intervention and control groups. Data of the patients who dropped out was excluded from the analysis.

	INTERVENTION GROUP		**CONTROL GROUP**		**U**	**Sig**
	MEAN (SD)	**MEAN RANK**	**Mean (SD)**	**MEAN RANK**		
AGE (Years)	**25 (9.62)**	**5.13**	**22.25 (9.60)**	**3.88**	**5.5**	**0.468**
EDUCATION (Years)	**9.50 (3.87)**	**4.50**	**7.50 (5.1)**	**4.50**	**8.00**	**1.00**

The patients allocated to each of the groups were not different in age and education.

Table 2: Comparison gender, marital status, and family type of patients allocated to intervention and control group.

VARIABLES	INTERVENTION GROUP		CONTROL GROUP		Chi Square	Sig.
GENDER	f	%	f	%	0.533	1.00
MALE	2	50	1	25		
FEMALE	2	50	3	75		
MARITAL STATUS	f	%	f	%	1.200	0.549
MARRIED	1	25	1	25		
SEPARATED	1	25	0	0		
UNMARRIED	2	50	3	75		
FAMILY TYPE	f	%	f	%	1.143	0.285
NUCLEAR	4	100	3	75		
JOINT	0		1	25		

The patients allocated to each group were not different on gender, marital status and family type.

Table 3: Comparison duration of illness of patients allocated to intervention and control group.

	INTERVENTION GROUP		CONTROL GROUP		U	SIG
	MEAN (SD)	MEAN RANK	MEAN (SD)	MEAN RANK		
DURATION OF ILLNESS	31.75 Months (34.06 Months)	6.00	1.68 Months (2.87 Months)	3.00	2.00	0.76

The patients allocated to each group were not different on duration of illness.

Table 4: Comparison onset, course, progress, nature of illness, and history of treatment of patients allocated to intervention and control group.

VARIABLES		INTERVENTION GROUP		CONTROL GROUP		Chi Square	Sig
		f	%	f	%	3.33	0.504
ONSET	ACUTE	O	0	1	25		
	SBUACUTE	1	25	0	0		
	INSIDEOUS	2	50	2	50		
	CHRONIC	1	25	1	25		
COURSE	EPISODIC	2	50	1	25	0.533	0.465
	CONTINOUS	2	50	3	75		
PROGRESS	STATIC	1	25	1	25	0.00	1.00
	DETERIORATING	3	75	3	75		

TREATMENT	PAST	3	75	1	25		
	FIRST	1	25	3	75		
HISTORY OF ILLNESS	RELAPSE	3	75	1	25	2.00	0.157
	FIRST TIME	1	25	3	75		

Patients in both the groups were not different on these variables.
After matching patients in both the groups for socio-demographic and clinical variables, pre-intervention assessments were completed for patients allocated to each of the intervention group and the control group.

Table 5: Comparison of intervention and control group at Pre-intervention assessments.

	Intervention Group		**Control Group**		**U**	**Sig.**
	M (SD)	Mean Rank	M (SD)	Mean Rank		
NEGATIVE	19.50 (3.10)	5.50	16.50 (5.25)	3.70	5.00	0.386
POSITIVE	24.25 (3.86)	4.13	24.00 (8.90)	4.88	6.500	0.663
GENERAL	54.00 (6.83)	5.75	45.50 (9.89)	3.25	3.00	0.149
MMSE	17.25 (7.58)	4.88	15.00 (5.47)	4.13	6.500	0.868

There was no significant difference between the groups on pre-intervention assessments.

Description of tools and techniques used:

- Semi-structured self made socio demographic and clinical data sheet: Age, No. of years of education, Gender, Marital Status, Family Type, Duration of illness, Mode of onset, Course, Progress, Treatment and History of illness were elicited through this sheet.
- Positive and Negative Syndrome Scale (PANSS) (Kay, Opler & Fizban,1987). It is a clinical rating scale assessing presence and severity of positive symptoms, negative symptoms and general psychopathology in patients. The positive syndrome consists of productive features superadded to the mental status, such as delusions, hallucinations, and disorganised thinking. The negative syndrome represents absence of normal functions, such as deficits in the cognitive, affective, and social realms.
- Hindi Adaptationf the Mini Mental State Examination (MMSE) (Folstien & McGugh, 1975), a widely used standardized test of cognitive function by Tiwari, Tripathi and Kumar (2009) was used. It is a simple pen-pencil test that gives a composite score indicating the severity of cognitive impairment, if any.

It includes tests of orientation, attention, memory, language and visual-spatial skills.

- Dance Therapy Intervention: A Module was created for a duration of 3 weeks using dance/movement therapy based on the Chasian origins of the therapy as a non-verbal treatment modality and as per the standards of the creative movement therapy association of India. The No. of sessions decided upon for the intervention were 9. Therapy sessions were planned across phases of introduction, exploration, core action, reflection and conclusion and these phases were used to plan each session, and to plan intentions for each session as well. Each session followed the following structure across a duration of 30-45 minutes:
    - Opening circle: Describe feelings and energy level and chanting 'Aum' together
    - Structured task section: Breathing to music and relaxing
    - Warm-up section: In a circle, head to toe warm-up using different body parts and movements;
    - Creative exploration section: Drawing self, Describing, Visualising imagery, Reflecting on how this feels;
    - Closing circle, reflecting on group experience, refocusing on self with body-oriented exercises such as self-touch, verbal integration. Prayer.

Procedure:

Of the 5 participants in the intervention group, 1 patient dropped out owing to side-effects of pharmacological treatment after attending 3 sessions. 1 patient from the control group sought early discharge from the IPD owing to personal reasons and also dropped out of the study. The data of these two patients was not analyzed and removed from the initial analysis as well. Sessions were completed across 3 weeks (plus 1 day), and a total of 10 sessions were conducted. On the last day, after closing the intervention session, post intervention assessments were conducted for both the groups. Assessments were completed individually for each patient (N=8). Patients and informants were verbally thanked for their cooperation and participation in the study.

Statistical Analysis:

Data was analyzed using SPSS software. Mann-Whitney U test was used to analyze the between group differences. Rank Difference correlation was used to analyze the within group differences.

Results:

Table 6: Comparison of intervention and control group at post intervention assessments.

	Intervention Group		**Control Group**		**U**	**Sig.**
	Mean (SD)	Mean Rank	Mean (SD)	Mean Rank		
NEGATIVE	15.50 (4.65)	5.63	11.25 (4.03)	3.38	3.50	0.191
POSITIVE	14.00 (4.96)	4.75	13.00 (3.36)	4.25	7.00	0.773
GENERAL	33.50 (8.88)	5.50	27.00 (6.53)	3.50	4.00	0.245
MMSE	19.75 (4.11)	4.25	21.37 (7.20)	4.75	7.00	0.770

The groups did not differ on post intervention assessments.

Table 7: Comparison of Intervention group at pre and post intervention

Variables	**PRE**	**POST**	**Mean Ranks**		**Z Value**	**Sig**
	MEAN (SD)	MEAN (SD)	NEGATIVE RANK	POSITIVE RANK		
NEGATIVE	19.50 (3.10)	15.50 (4.64)	3.00	1.00	-1.461	0.144
POSITIVE	24.25 (3.86)	14.00 (4.96)	2.50	0.00	-1.841	0.066
GENERAL	54.00 (6.83)	33.50 (8.88)	2.50	0.00	-1.826	0.068
MMSE	17.25 (7.58)	19.75 (4.11)	1.OO	2.50	-1.069	0.285

The group did not differ on pre-test and post-test assessments.

Table 8: Comparison of control group at pre and post intervention

Variables	PRE	POST	Mean Ranks		Z Value	Sig
	MEAN (SD)	MEAN (SD)	NEGATIVE RANK	POSITIVE RANK		
NEGATIVE	16.50 (5.25)	13.00 (3.36)	2.50	0.00	-1.841	0.066
POSITIVE	24.00 (8.90)	13.00 (3.36)	2.50	0.00	-1.826	0.068
GENERAL	45.00 (9.89)	27.00 (6.53)	2.50	0.00	-1.826	0.068
MMSE	15 (5.47)	21.37 (7.20)	0.00	2.50	-1.841	0.066

The group did not differ on pre-test and post-test assessments.

Discussion:

The present study was conducted over three weeks (plus 1 day) and 10 sessions. The sample in both the groups matched on socio-demographic and clinical variables. The sample was no different at pre-intervention PANSS and MMSE (Hindi) assessments. The study had a patient drop out from the intervention after 3 sessions, and a patient drop out from the control group as well owing to early discharge from the hospital due to some personal reasons. The data was not analyzed to account for the missing data. This was a limitation of the study.

No difference was observed in the sample (N=8, n1=4, n2=4) post intervention between the groups. Previous studies examining the effects of dance therapy as an adjunct to pharmacological treatment were conducted over 6 weeks to 12 weeks, involving a minimum of 10 sessions. With significant improvement of negative symptoms being seen at 20 sessions (Martin et al, 2016). Non-significant results may be due to an ineffective intervention or essential elements omitted from the intervention, leading to an acceptance of the null hypothesis when it is false (Type II error) (Banerjee, Chitnis, Jadhav, Bhawalkar, & Chaudhury, 2009). It is possible that the duration of the intervention, and the number of sessions planned were not sufficient for the expected outcomes. Additionally, the assessment measures used did not directly measure the impact on the social communication of the patients that the intervention module was targeted upon. Use of an additional assessment tool like Human Figure Drawing Test might have been helpful in measuring the true impact of the intervention. Issues of intervention and methodological fidelity were present and unaccounted for (Toomey E, Hardeman W, Hankonen N, Byrne M, McSharry J, Matvienko-Sikar K, Lorencatto F., 2022) e.g. expertise of the facilitator, measurement of variables targeted by the intervention v/s variables being measured, follow up assessments for both the groups after a time period of 2 weeks, 1 month, 3 month.

Surprisingly, the within group assessments on pre-intervention and post-intervention did not differ significantly either for both the groups. The prognosis for patients with schizophrenia is generally unpredictable. Only 20% of patients report favorable treatment outcomes. The remaining patients experience numerous psychotic episodes, chronic symptoms, and a poor response to antipsychotics. (Patel KR, Cherian J, Gohil K, Atkinson D, 2013). It is possible that the sample of the study presented with a poor prognosis, treatment resistant and/or pseudo-treatment resistant presentations of schizophrenia. Treatment resistant schizophrenia may present from the first episode of psychosis or may develop later in the disease progression. Later onset of treatment resistance may be preceded by relapses which in part may result from medication nonadherence or discontinuation i.e. pseudo-resistance (i.e., when a patient appears resistant, but treatment is inadequate rather than ineffective) (Potkin, Kane, Correll et al., 2020).

The results of the present study were inconclusive. They highlighted that current psycho-pharmacological treatments may be enough but are not sufficient for persons suffering from Schizophrenia. There is indeed a need for exploring alternative and adjunctive therapies for treatment of schizophrenia especially, in India.

Conflict of interest:

The authors declare no conflict of interest

Acknowledgements:

Prof. J. Mahto, H.O.D. Department of Clinical Psychology, PGIBAMS, Raipur (C.G.)

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